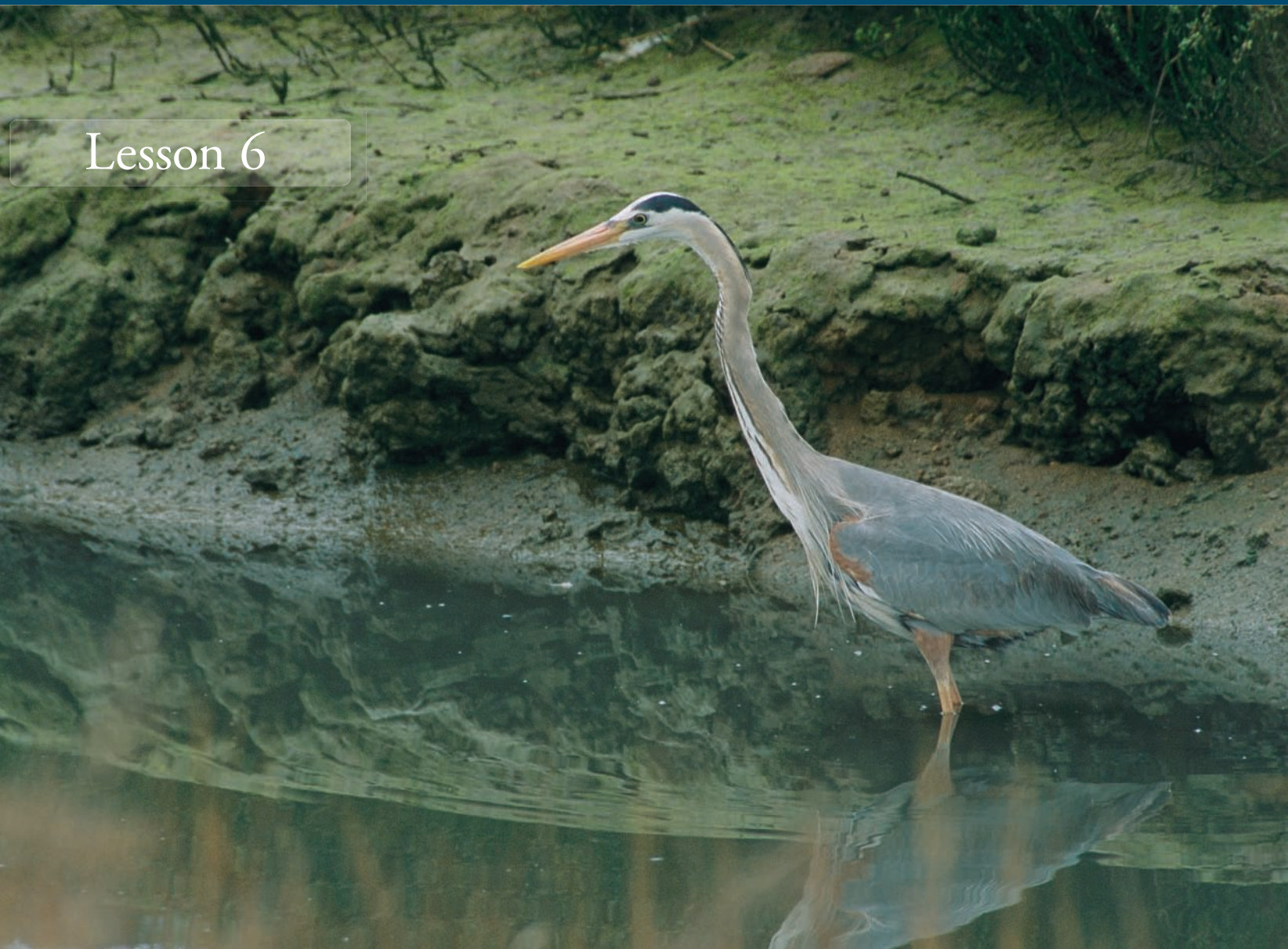


Lesson 6



Great blue heron hunting

The Future of the Tijuana River

Previous lessons examined the international efforts made to improve the environmental health of the border region. This final lesson places the relationship between the United States and Mexico back into a California context.

The students revisit the *California Connections: The Tijuana River—Part 1: A Shared Resource* and read *California Connections: The Tijuana River—Part 2: Working Together to Find Solutions*, which discusses recent actions by community and governmental

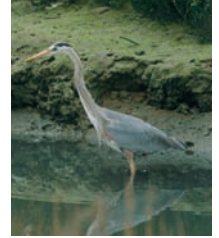
organizations working to resolve environmental issues in the Tijuana River watershed. Students learn that the environmental issues that surround the Tijuana River continue to influence the relationship between the United States and Mexico. This lesson

also provides an opportunity for students to reflect on the viewpoints of the various stakeholders, the effect of population growth on the border region, and other agreements and programs currently addressing environmental issues in other parts of the border region.

Learning Objective

Identify key environmental issues that influence the relations between the United States and Mexico.

Provide examples of environmental impacts that are not contained by the political boundaries between the United States and Mexico.



in the region. Cooperative projects over the past ten years have restored habitat for wildlife along the Tijuana River and estuary.

Despite this concerted and collaborative effort to resolve some of the environmental issues involving the Tijuana River watershed, serious problems still persist. Major funding to help alleviate the lack of infrastructure in the region is still not in place. Some reports show a struggle between grassroots advocacy groups and high-level decision makers. The various stakeholders in the region have different ideas about how to address the issues. Programs like the Border 2012 Program are working to bring together local communities and federal agencies to assess and address the needs of the communities; these programs are still rare, however, and many lack sufficient funding to be effective.

Background

International support for dealing with environmental issues involving the Tijuana River watershed continues to grow. The Tijuana River National Estuarine Research Reserve (TRNERR) in Imperial Beach, California, is researching the issues and developing plans to improve the health of ecosystems in the region. The reserve uses innovative education and outreach programs to increase awareness of environmental issues involving the Tijuana River Watershed on both sides of the border. The TRNERR has encouraged participation among U.S. and Mexican non-governmental organizations and local community members.

The California Coastal Conservancy has granted more than \$200,000 for research to assess the environmental problems on the Tijuana River. Another organization involved in research and policy in this region is the State of the Environment of the Tijuana River Basin, created in the 1990s to raise awareness of the current environmental health of the basin and predictions for the future. The County of San Diego's Department of Environmental Health has been monitoring water quality at the beaches since 2000. While Mexico does not mandate this type of testing, local volunteer groups are testing the water quality in Tijuana.

The TRNERR demonstrates the efficacy of binational cooperation

Key Vocabulary

Outreach: Providing information or services to groups in society who otherwise might not have access to such information or services.

Restoration: The process of returning something, from a work of art to an ecosystem, to an earlier or better condition. Ecological restoration is usually targeted at ecosystems that have been degraded, transformed, or destroyed as the result of human activities.

Stewardship: Careful and responsible management of land, air, water, and biodiversity to ensure healthy and fully functioning ecosystems.



Water testing at Tijuana Estuary

Toolbox



Summary of Activities

Students read about several organizations' efforts to resolve environmental issues in the Tijuana River watershed. The class discusses these efforts in light of actions in the rest of the border region and examine how the efforts influence U.S.-Mexico relations.



Instructional Support

See Extensions & Unit Resources, page 32

Prerequisite Knowledge



Students should have:

- completed previous lessons.

Advanced Preparation



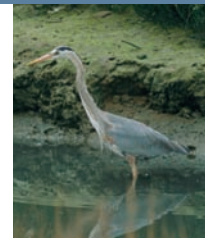
Gather and prepare Activity Masters:

- Gather from previous lessons:
 - *California Connections: The Tijuana River—Part 1: A Shared Resource* from Lesson 1

Gather and prepare Materials Needed.

Gather and prepare Visual Aids:

- Prepare transparencies.



Materials Needed



A-V equipment:

Overhead or LCD projector and computer, screen

Class supplies:

- Pencils or pens

Visual Aids



Transparencies:

- Map of the Tijuana River and Estuary, Visual Aid #8

Duration



Preparation Time

15 min.

Instructional Time

55 min.



Safety Notes

None

Activity Masters in the Supporting Materials (SM)

California Connections: The Tijuana River—Part 2: Working Together to Find Solutions

SM, Page 46–47
One per student

The Future of the Tijuana River

SM, Page 48
One per student

Procedures

Vocabulary Development

As appropriate, in each lesson introduce new vocabulary words using the **Key Unit Vocabulary** (Lesson 1 Activity Master).

Step 1

Redistribute **California Connections: The Tijuana River—Part 1: A Shared Resource** (Lesson 1 Activity Master) and review the issues surrounding the Tijuana River by asking students the following questions:

- What are some of the problems and issues surrounding the Tijuana River? (*The water quality is deteriorating due to limited sewage infrastructure in Tijuana and old infrastructure in San Diego. The growing population is putting pressure on water quality and quantity in the Tijuana River. Dumping toxic chemicals into the river, affects the fragile ecosystem.*)
- How is the Tijuana River estuary affected? (*The estuary has a great deal of wildlife and performs important natural system functions, but the increase in population is putting pressure on the ecosystem.*)
- Why are these problems considered transboundary problems? (*The river flows between the U.S. and Mexico. Both countries are responsible for the problems, and the problems affect both countries.*)

Step 2

Distribute copies of **The Tijuana River—Part 2: Working Together to Find Solutions** (Lesson 6 Activity Master). Place the **Map of the Tijuana River and Estuary** (Visual Aid #8) on the overhead or LCD projector. Point out where the Tijuana River flows as well as the locations of the cities of San Diego, Tijuana, and Tecate. Have the students independently read **The Tijuana River—Part 2: Working Together to Find Solutions**.

Step 3

Distribute copies of **The Future of the Tijuana River** (Lesson 6 Activity Master) to each student. Have them independently complete the worksheet.

When students have finished their work, organize the class into groups of four. Direct the groups of four to discuss their responses to the questions on **The Future of the Tijuana River**. Allow the groups 10 minutes for discussion.

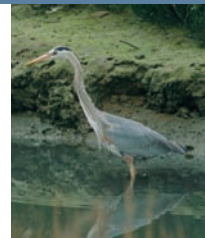
Step 4

Following the small group discussions, have volunteers from each group share their answers to the discussion questions on **The Future of the Tijuana River**. Follow the discussion of the reading by asking the following questions:

- Do the efforts mentioned in the reading address political, economic, and environmental issues? (*Yes. The work being done is addressing the political issues by creating an alliance between the U.S. and Mexico to improve the water in the Tijuana River. The two countries are working to improve the infrastructure in areas that cannot afford the improvements. The two countries and stakeholders are working to assess, educate, and clean up the river and surrounding ecosystem.*)
- How do these efforts compare with what is being done by other groups on similar issues in other parts of the border region? (*This “bottom-up” approach is similar to the Border 2012 Program. The stakeholders are trying to get a wide range of people involved in the resource management decisions.*)
- Are the United States and Mexico addressing the environmental issues equally? Why or why not? (*Mexico does not have as much money to enforce environmental laws, but they are trying to work with the U.S. to address a range of environmental issues. Both countries have much at stake in this region.*)

Step 5

Collect the copies of the readings and **The Future of the Tijuana River** to use in assessment.



Lesson Assessment

Description

This lesson returns students to the Tijuana River, which serves as a case study of an area in which environmental issues shared between the United States and Mexico influence relations between the two countries. Students demonstrate that they can understand this idea by answering the discussion questions on **The Future of the Tijuana River** (Lesson 6 Activity Master).

Suggested Scoring

Use the Answer Key and Sample Answers provided on page 108 to assess students' responses on **The Future of the Tijuana River**. Each answer is worth 10 points for a total possible score of 30 points.

Answer Key and Sample Answers

The Future of the Tijuana River

Lesson 6 Activity Master

Name: _____

1. How are people addressing the environmental issues in the Tijuana River watershed?

The Tijuana River National Estuarine Research Reserve has been collecting data and creating restoration projects to improve the wetlands ecosystem. They have started a grassroots effort to educate residents and get them involved in being stewards on the environment in which they live.

2. Describe some problems in the Tijuana River watershed that still might be a concern.

Unplanned settlements and continued raw sewage dumping in the river are still concerns. Also, inadequate storage of hazardous waste as well as dumping from some maquiladoras continue.

3. With all that people are doing to solve environmental problems in the watershed, why are there still problems? What factors are affecting progress?

The problems are large and connect to the economy and politics. Restoring an ecosystem is never easy. The financial costs can be tremendous. Another reason could be that there is no agreement among stakeholders on various potential solutions. Also, resources to work on the solutions are not as abundant in Mexico as in the United States. Environmental laws on both sides of the border may need to be strengthened.

The Tijuana River

Part 2: Working Together to Find Solutions



In 2003, the mayors of Tecate and Tijuana became board members of the Tijuana River National Estuarine Research Reserve. The group aims to improve relations and management strategies on both sides of the river.

Researchers from both countries monitor water quality and wetland species. They propose ways to restore the health of the estuary. Restoration projects include constructing sedimentation basins that catch sediment and debris, as well as digging sediment from filled marshes and removing non-native plant species that threaten native plant communities. In addition, the Reserve runs a visitor center to educate the public. Representatives of the Reserve also work with Mexican agencies to train teachers on both sides of the border.

In 2006, the City of Tijuana and the State of California worked together to clean up Los Laureles Canyon. The canyon had become home to an unplanned housing



Tijuana Watershed—Los



Water testing at Tijuana estuary

development. The Mexican city and California created a sewage treatment plant and helped restore the natural waterway. They also organized riverbank cleanups. The U.S. Environmental Protection Agency also cooperates with many organizations in both the United States and Mexico to support wastewater projects in the area. The goal of these projects is maintaining the health of the border region. Recently, researchers from Mexican and U.S. universities developed a Tijuana River atlas. This atlas includes maps, photographs, and information about topography,

climate, population, and land use in the Tijuana River watershed. Policymakers and planners in both countries can use this atlas to help make decisions. This binational project is a first step toward building communication and partnerships.

Current efforts to better manage the valuable resources of the Tijuana River are taking a “grassroots” approach. This means educating and working with people living in the watershed on both sides of the river. The goal is to give residents a sense of long-term stewardship, to encourage

them to accept individual responsibility. Local outreach programs and restoration projects are underway in San Diego, Tecate, and Tijuana. These programs and projects encourage people to become aware of the issues that affect the river, as well as possible solutions. If the people of the Tijuana River watershed have the knowledge, tools, and support to co-exist with the natural environment, they will be able to make a difference on both sides of the border.



Gathering trash on International Coastal Clean-up Day

Map of the Tijuana River and Estuary

